NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION

ANIONIC POLYACRYLAMIDE (PAM) EROSION CONTROL

(Acre)
Code 450

1. SCOPE

The work shall consist of adding anionic polyacrylamide (PAM) to the irrigation water for purposes listed in Standard 450.

2. MATERIAL

The polyacrylamide shall conform to the following requirements:

- Be anionic (negatively charged) polyacrylamide labeled as such, or alternatively, as a copolymer of acrylamide and acrylate (acrylic acid salt),
- Have a charge density of 10 to 55 percent,
- Have a molecular weight of 6 to 24 Mg/mole,
- The acrylamide monomer (AMD) maximum concentration not to exceed 0.05 percent.

3. POLYMER APPLICATION

The chemical (PAM) shall be added to the irrigation water at a rate to produce a concentration of 10 ppm, or as specified. Refer to **"Rate Chart"** at the end of this specification.

The manufacturer's recommendations, as listed on the product label, shall be adhered to for mixing and application.

PAM shall be added to the first irrigation (pre-irrigation is considered irrigation.). It shall be applied on every irrigation that follows a soil disturbance or when soil movement is noted or predicted.

PAM will be added to the irrigation water only during the advance phase of irrigation. The advance phase will be considered to be from the time irrigation starts until water has advanced to the end of the furrows or corrugations.

Adjustment of the concentration downward may be used so long as no visible erosion occurs. Secondary applications on untilled furrows may be needed but may not be required at the same rate as the first application.

4. BASIS OF ACCEPTANCE

This practice will be considered acceptable when amounts and timing of PAM application are conducted according to the standard and / or the irrigation-induced erosion has been reduced to an acceptable level.

5. OPERATION AND MAINTENANCE

Irrigation will be monitored and the PAM applications will be discontinued when the advance phase has been completed with no significant soil movement.

Excessive application of PAM can lower infiltration rate or suspend solids in water, rather than promote settling.

Safety precautions as listed on the label, and industry guidelines shall be followed. PAM dust can cause choking and difficult breathing. A mask shall be used by persons handling PAM.

All equipment used to mix and to apply PAM shall be rinsed thoroughly with water to avoid formation of intractable PAM residues.

Full-potency shelf life is only about one year and loss of effectiveness may be noted when using older material.

PAM should be stored in a cool, dry place, away from direct sunlight, to avoid breakdown and loss of potency. Avoid freezing of liquid forms of PAM. Emulsified concentrates may need mixing before injection or dilution as PAM and the carrier may separate.

Care must be taken to prevent spills. Anionic PAM mixtures combined with water are extremely slippery and can pose a safety hazard. If spills occur, avoid traffic in the spill area. Clean thoroughly with sand, sawdust, or the like before attempting to wash down with water.

NRCS, NM
April 2003

RATE CHART - PARTS PER MILLION of PAM for WATER SUPPLY versus POLYMER ADDITION																	
Water Supply	**GPM**	**CFS**	PARTS PER MILLION IN WATER SUPPLY														
	50	0.11	5.3	10.6	21.1	31.7	42.3	52.8	63.4	79.2	105.6	132.1	158.5	211.3	264.1	396.2	528.2
	100	0.22	2.6	5.3	10.6	15.8	21.1	26.4	31.7	39.6	52.8	66.0	79.2	105.6	132.1	198.1	264.1
	150	0.33	1.8	3.5	7.0	10.6	14.1	17.6	21.1	26.4	35.2	44.0	52.8	70.4	88.0	132.1	176.1
	200	0.45	1.3	2.6	5.3	7.9	10.6	13.2	15.8	19.8	26.4	33.0	39.6	52.8	66.0	99.0	132.1
	250	0.56	1.1	2.1	4.2	6.3	8.5	10.6	12.7	15.8	21.1	26.4	31.7	42.3	52.8	79.2	105.6
	300	0.67	0.9	1.8	3.5	5.3	7.0	8.8	10.6	13.2	17.6	22.0	26.4	35.2	44.0	66.0	88.0
	400	0.89	0.7	1.3	2.6	4.0	5.3	6.6	7.9	9.9	13.2	16.5	19.8	26.4	33.0	49.5	66.0
	500	1.1	0.5	1.1	2.1	3.2	4.2	5.3	6.3	7.9	10.6	13.2	15.8	21.1	26.4	39.6	52.8
	600	1.3	0.4	0.9	1.8	2.6	3.5	4.4	5.3	6.6	8.8	11.0	13.2	17.6	22.0	33.0	44.0
	750	1.7	0.4	0.7	1.4	2.1	2.8	3.5	4.2	5.3	7.0	8.8	10.6	14.1	17.6	26.4	35.2
	1000	2.2	0.3	0.5	1.1	1.6	2.1	2.6	3.2	4.0	5.3	6.6	7.9	10.6	13.2	19.8	26.4
	1250	2.8	0.2	0.4	0.8	1.3	1.7	2.1	2.5	3.2	4.2	5.3	6.3	8.5	10.6	15.8	21.1
	1500	3.3	0.2	0.4	0.7	1.1	1.4	1.8	2.1	2.6	3.5	4.4	5.3	7.0	8.8	13.2	17.6
	1750	3.9	0.2	0.3	0.6	0.9	1.2	1.5	1.8	2.3	3.0	3.8	4.5	6.0	7.5	11.3	15.1
	2000	4.5	0.1	0.3	0.5	0.8	1.1	1.3	1.6	2.0	2.6	3.3	4.0	5.3	6.6	9.9	13.2
	2500	5.6	0.1	0.2	0.4	0.6	0.8	1.1	1.3	1.6	2.1	2.6	3.2	4.2	5.3	7.9	10.6
	3000	6.7	0.1	0.2	0.4	0.5	0.7	0.9	1.1	1.3	1.8	2.2	2.6	3.5	4.4	6.6	8.8
	3500	7.8	0.1	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.5	1.9	2.3	3.0	3.8	5.7	7.5
	4000	8.9	0.1	0.1	0.3	0.4	0.5	0.7	0.8	1.0	1.3	1.7	2.0	2.6	3.3	5.0	6.6
	5000	11.1	0.1	0.1	0.2	0.3	0.4	0.5	0.6	0.8	1.1	1.3	1.6	2.1	2.6	4.0	5.3
Polymer Rates	**Grams / Minute**		1	2	4	6	8	10	12	15	20	25	30	40	50	75	100
	Ounces / Minute		0.04	0.07	0.14	0.21	0.28	0.35	0.42	0.53	0.70	0.88	1.06	1.41	1.76	2.64	3.52
	Pounds / Hour		0.13	0.26	0.53	0.79	1.06	1.32	1.58	1.98	2.64	3.30	3.96	5.28	6.60	9.90	13.20

Grey areas of parts per million are outside of specification.

Example: If a water supply turnout to a field is measured at 500 GPM and you want to achieve 5 parts per million in the supply then read the chart at the left to find the 500 GPM mark. Follow line across to the figure closest to 5 GPM (5.3). Read down to the appropriate rate to add the polymer material. In this example use either 10 grams/minute or .35 ounces/minute or 1.32 pounds/hour.

NRCS, NM
April 2003